



# Three new species and one new country record of velvet ants (Hymenoptera, Mutillidae) from Thailand

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## Abstract

Three new species of velvet ants known from females are here described: *Mickelomyrme leleji* Sittichaya & Williams, **sp. nov.**, *Nordeniella dokbua* Sittichaya & Williams, **sp. nov.**, and *Smicromyrme songkhwa* Sittichaya & Williams, **sp. nov.** One additional species is newly recorded from Thailand: *Bischoffitilla selangorensis* (Pagden). Synoptic list of Mutillidae in Thailand Natural History Museum with new records is given.

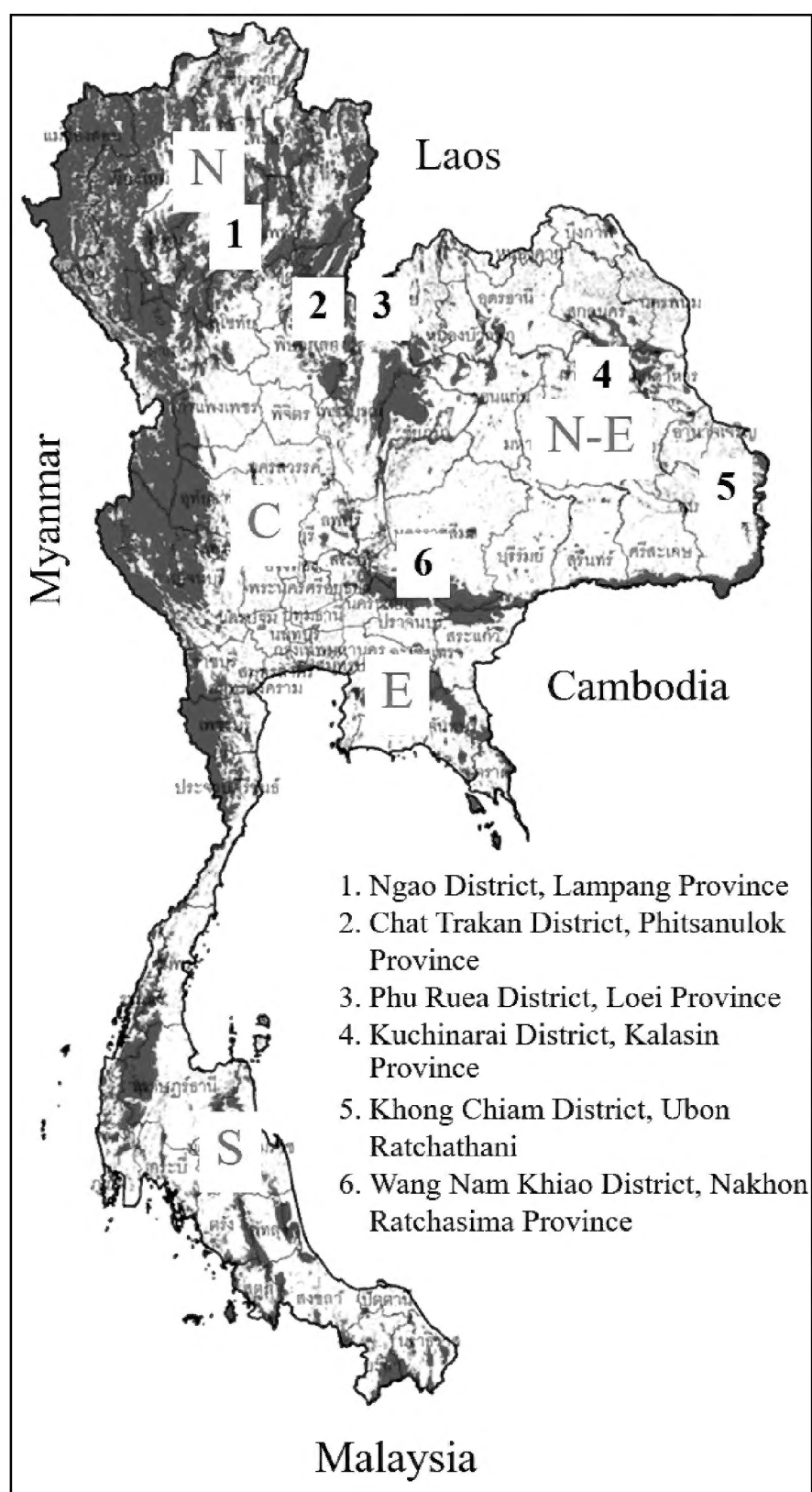
## Keywords

Diversity, Mutillidae, new record, new species, Oriental region, taxonomy

## Introduction

In Thailand, studies of velvet ants (Mutillidae) are rare and a systematic nation-wide survey is still crucial to study the diversity of these wasps in the country. Before 2019, Thai velvet ants were only discussed in catalogs or revisions of various genera in the Oriental Region (Lelej and Krombein 1999; Lelej 2005; Lelej et al. 2016, 2017; Okayasu et al. 2018, 2021a, b, c) and 33 species were recorded from Thailand (25 known from

females). The first survey focused on Thailand was written by Williams et al. (2019) and treated female specimens in southern Thailand. The result of that project raised the number of Thai species from 33 to 61. Since then, three additional Thai species were recognized in the genus *Andreimyrmex* Lelej, 2005 (Okayasu et al. 2021b), raising the count to 64 species. In the present paper, we examined 83 pinned specimens from the Thailand Natural History Museum, National Science Museum resulting from multiple collecting events mostly from Northern and Northeastern Thailand. Three species new to science and one new country record were recognized, raising the number of species recorded from Thailand to 68.



**Figure 1.** Specimen collecting localities, the ordinal numbers in accordance with the sequence of locations in the text. N=Northern region, N-E=North-Eastern region, C=Central region; E=Eastern region, S=Southern region. Source: map modified from a Royal Forest Department of Thailand map.

## Material and methods

The specimens were collected from different localities in Thailand (Fig. 1) with hand collecting or honey baiting. Specimens were then observed with Leica S9-D, Leica S8 APO Leica, or Leica M165C stereomicroscopes (Leica Microsystems Pte Ltd, Germany). The habitus of specimens were photographed using Canon 6D digital camera with a Canon MP-E 65mm Macro Photo Lens, magnified with 2×-extender tube (Canon, Tokyo, Japan) and StackShot-Macrorail (Cognisys Inc, MichiganI, USA). The photos were then combined with Helicon Focus 6.8.0. (Helicon Soft, Ukraine), all photos were improved with Adobe Photoshop CS6 (Adobe Systems, California, USA). The terminology mostly follows Hymenoptera Anatomy Ontology (2013) and the taxonomic characters and type specimen measurements follow the methodology used in Williams et al. (2019).

## Abbreviations

<b>CSCA</b>	California State Collection of Arthropods, Sacramento, California, USA.
<b>THNHM</b>	Natural History Museum of the National Science Museum, Pathum Thani, Thailand.
<b>PSUC</b>	Prince of Songkhla University Collection, Hat Yai, Songkhla, Thailand.

## Results

### Taxonomic treatment

**Family Mutillidae Latreille, 1802**

**Subfamily Myrmillinae Bischoff, 1920**

**Genus *Bischoffitilla* Lelej, 2002**

***Bischoffitilla selangorensis* (Pagden, 1934)**

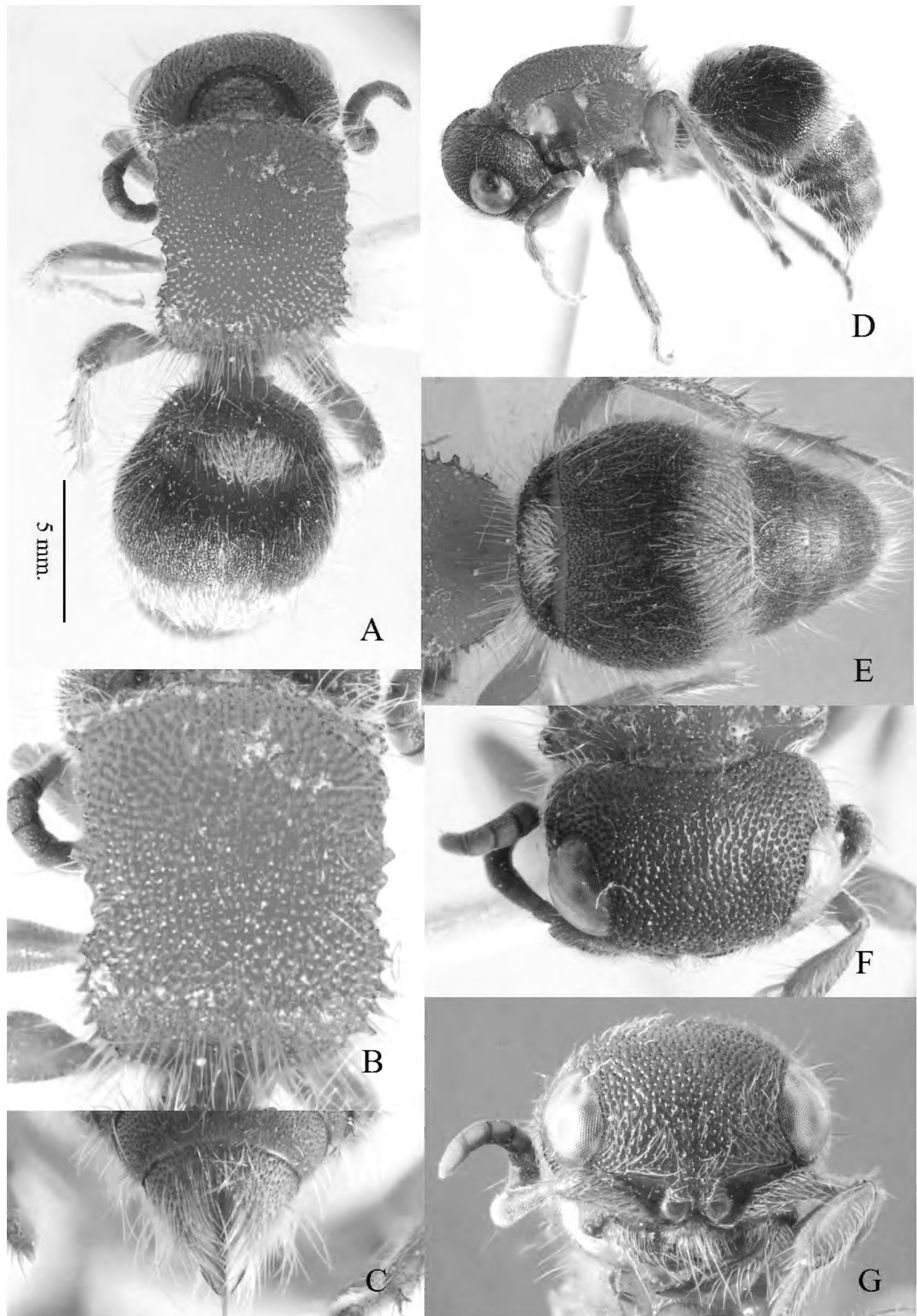
Fig 2

*Squamuloltilla selangorensis* Pagden, 1934: 452.

*Bischoffitilla selangorensis* (Padgen). Comb.n. Lelej, 2002: 127.

**Material examined. *Holotype*:** ♀, MALAYSIA, *Selangor*, Bukit Kutu, 31.I.1930 (BMNH).

**Other material.** New to THAILAND, *Lampang Province*, Ngao District, Tham Pha Thai NP., 20. XII.2001, S. Hasin leg., (1♀, THNHM); *Loei Province*, Phu Ruea District, Waranya Resort 17.460 –101.355, 25–26.III.2019, K. Williams, S. Puttasok, K. Thoawan, R. Malee and N. Thaochan leg., (4♀ CSCA); 19.I.1999, W. Jaitrong leg. (1♀ THNHM); *Nakhon Ratchasima Province*, Wang Nam Khiao District, 09.V.2001, W. Jaitrong and T. Jeentong leg. (1♀, THNHM).



**Figure 2.** *Bischoffitilla selangorensis*, ♀, Thailand **A** dorsal view **B** mesosoma dorsum **C** pygidium **D** lateral view **E** metasomal terga **F** vertex **G** frons and clypeus.

**Diagnosis. Female.** This species can be separated from other Thai species by having the posterior propodeal surface with uniformly dense small punctures. The following combination of characters are also useful for diagnosis: genal carina short with weak anterior tooth; mesopleural lamella longer than flagellar width, apically rounded; lateral margins of mesosomal dorsum margined with wavy multidentate carina; dorsoposterior propodeal row with median tooth distinct, larger than lateral teeth; T3–5 with brown or black appressed setae and interspersed sparse erect blackish and white to yellowish setae. Body length 5.0–6.2 mm.

**Male.** Unknown.

**Variation.** The head and metasoma cuticle colors vary from reddish-brown to black. The appressed metasomal setae vary from brown to black. The cuticle beneath the whitish setal markings of T1 and T2 vary from mostly brown or black to entirely bright whitish-yellow. The size and number of apparent teeth along the dorso-lateral pronotal and mesonotal margins vary. The height of the spines on the dorsoposterior propodeal row varies and the number of spines varies from three to five on each side. The leg color varies from entirely pale orange-brown to mostly dark brown.

**Male.** Unknown.

**Distribution.** Malaysia (Selangor); Thailand (Loei, Lampang, Nakhon Ratchasima).

**Remarks.** This species is newly recorded from Thailand. In the key to Thai females from Williams et al. (2019), *B. selangorensis* terminates at couplet 4. It can be differentiated from *B. lamellata* and the other species by having T3 without a distinct band or mesal patch of whitish setae; rather, T3 has sparse interspersed blackish and pale yellow or whitish setae. Unlike the other Thai species, the posterior propodeal surface has uniformly dense small punctures; the other Thai species have the posterior propodeal surface widely areolate, becoming smooth ventrally.

### Subfamily Mutillinae Latreille, 1802

### Tribe Smicromyrmini Bischoff, 1920

### Genus *Mickelomyrme* Lelej, 1995

#### *Mickelomyrme leleji* Sittichaya & Williams, sp. nov.

<https://zoobank.org/53BF13DA-3D42-4AA5-AE12-766BE0F2FE05>

Fig. 3

**Material examined. Holotype:** ♀, THAILAND, *Ubon Ratchathani Province*, Khong Chiam District, Khao Phan Bok, Mekong river, 140 msl., N152708.33 E1053545.96, 09.ii.2016. W. Jaitrong leg. (THNHM). **Paratype:** ♀, THAILAND, *Loei Province*, Phu Ruea District, Waranya Resort 17.460–101.355, 25–26.III.2019, K. Williams, S. Puttasok, K. Thoawan, R. Malee and N. Thaochan leg. (1♀ CSCA).

**Diagnosis. Female.** This species can be separated from other *Mickelomyrme* by the unique metasomal setal pattern: the T2 posterior fringe is has a mesal patch of white setae and T3–5 have the setae mostly whitish. The following characters are also diagnostic: the vertex has sparse whitish setae; the mesosoma is uniformly orange-brown



without distinct whitish setal patches; the scutellar scale is transversely arcuate, ~6 punctures wide, with transverse wavy carinae anterior and posterior to the scale; the T2 disc is convex and the cuticle is uniformly blackish beneath the white setal spots; and the pygidium is elongate triangular with most striae continuous nearly to the apical margin. Body length 3.5–4.5 mm. **Male.** Unknown.

**Description. Female.** Body length 3.5 mm. **Coloration.** Head dark brown except antennal tubercle, malar space, clypeus, mandibular bases, scape and pedicel bases apparently paler brown. Mesosoma orange-brown. Legs brown except pro-, meso- and metacoxae paler. Metasoma dark brown except T1 orange-brown, S1–6 paler brown. Body setae generally sparse except T3–4 apically. Setal color generally whitish, except mesosoma dorsum and T2 aside from setal patches covered with dark-brown appressed setae; T2 disc with three large white ovate setal patches; T2 fringe white mesally; T3–6 setae almost entirely whitish. **Head.** Width behind eye subequal to mesosoma width. Frons, vertex, and gena punctures small, widely separated. Mandible apex apparently unidentate. Clypeus with transverse entire carina carina, basomedial portion triangulate narrow with a small, median tubercle. Antennal scrobe without dorsal carina. Antennal tubercle smooth. Genal carina obliterated. F1 1.6× pedicel length, F2 1.2× pedicel length. **Mesosoma.** Length 1.4× width. Dorsum with shallow hexagonal punctures, punctures on apical one-fifth very shallow obscure, deeper and more prominent posteriorly. Side of mesosoma smooth and shining, upper portion sparsely covered with shorter setae, lower portion with dense white long setae. Mesopleural lamella absent. Humeral carina weakly developed and obliterated dorsally. Ratio of width of humeral angle, anterior spiracle, narrowest point of mesonotum, propodeal spiracle, and widest point of propodeum 46:52:44:46:48. Scutellar scale transversely arcuate, ~6 punctures wide, with transverse wavy carinae anterior and posterior to scale. Posterior propodeal face; upper portion areolate, lower portion shagreened without punctures. Lateral and posterior propodeal faces not separated by carina. Metatibio-tarsal ratio 39:20:12:9:6:6. **Metasoma.** T1–5 with small dense punctures. S1 with simple longitudinal carina. T2 felt line 0.56× T2 total length. T6 with elongate triangular pygidial plate, with sub-parallel striae (~14 near base), mostly reaching apex. S6 posterior margin narrowly emarginate.

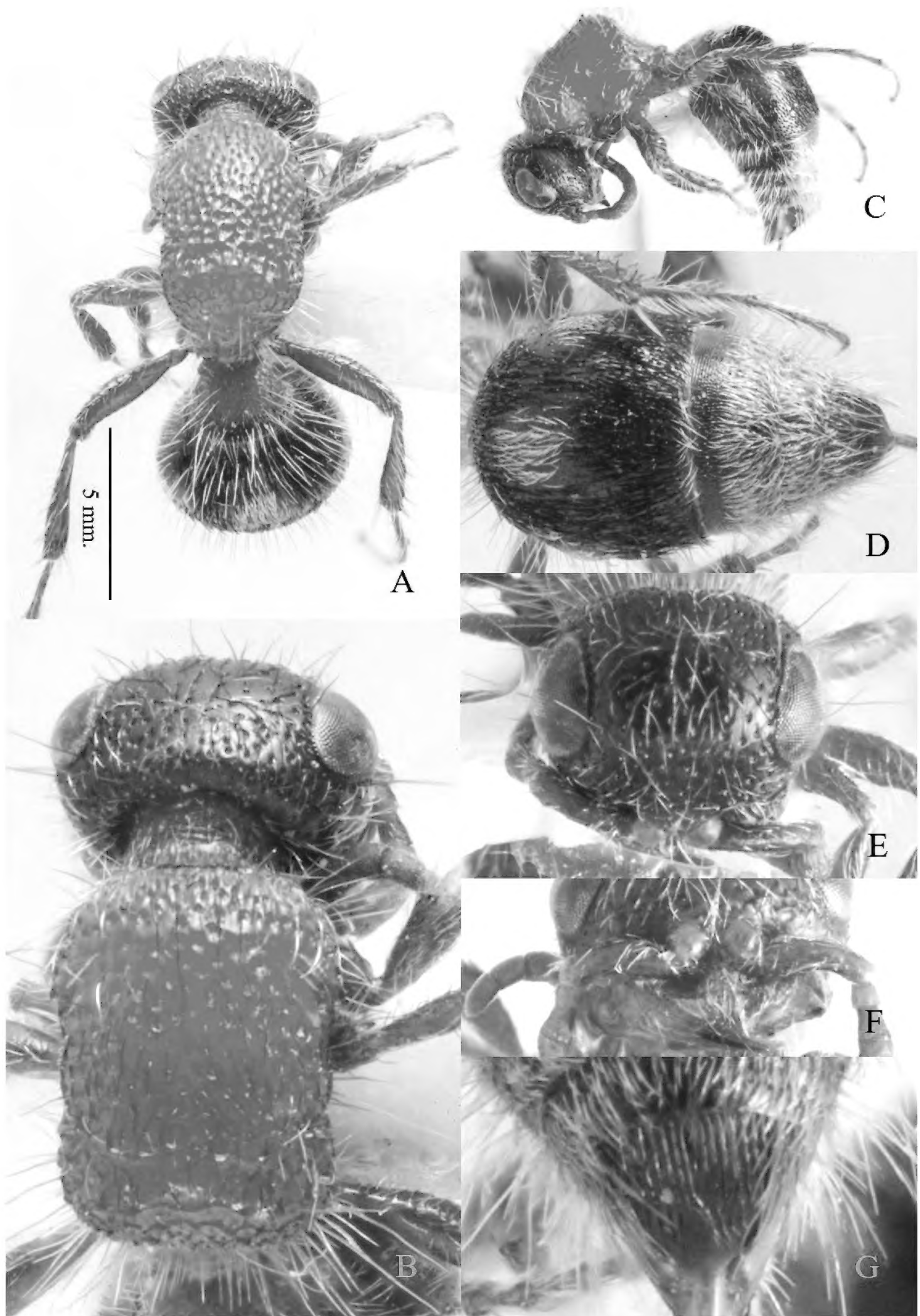
**Male.** Unknown.

**Variation.** The paratype is 4.5 mm in length and has slightly a wider patch of blackish setae mesally on T5.

**Distribution.** Thailand (Loei, Ubon Ratchathani)

**Etymology.** The name honors Arkady S. Lelej, who described the genus and for his great contributions to modern velvet-ant taxonomy.

**Remarks.** In the key to female velvet ants in southern Thailand (Williams et al. 2019), this species terminates at couplet 17 because the metasomal coloration does not match any of the species. It terminates at couplet 2 in the key to East Asian *Mickelomyrme* species (Lelej 1996) for the same reason. Structurally, this species seems most similar to *M. kinguri* Williams in Williams et al., 2019 or *M. puttasoki* Williams in Williams et al. 2019, based on the distinct pygidial striae. The pygidial shape is somewhat intermediate



**Figure 3.** *Mickelomyrme leleji* sp.nov., holotype, female **A** dorsal view **B** mesosoma dorsum **C** lateral view **D** metasomal terga **E** vertex **F** clypeus **G** pygidium.

between those species, being elongate triangular (broadly triangular in *M. puttasoki*, elongate ovate in *M. kinguri*). Unlike those species, the mesonotum is uniformly orange-brown (pronotum largely blackened in *M. kinguri* and *M. puttasoki*); the mesonotum lacks distinct white setal patches (present in *M. kinguri* and *M. puttasoki*), the T2 disc patches are composed of concolorous whitish setae (mesal T2 disc patch yellowish, orange, or absent in *M. kinguri* and *M. puttasoki*), and the T2 fringe has a whitish mesal setal patch (T2 fringe entirely black in *M. kinguri* and *M. puttasoki*). Additionally, unlike *M. kinguri*, the head is dark brown (pale orange-brown in *M. kinguri*) and, unlike *M. puttasoki*, the pygidial striae are sub-parallel (striae posteriorly divergent in *M. puttasoki*).

### Genus *Nordeniella* Lelej, 2005

#### *Nordeniella dokbua* Sittichaya & Williams, sp. nov.

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Fig. 4

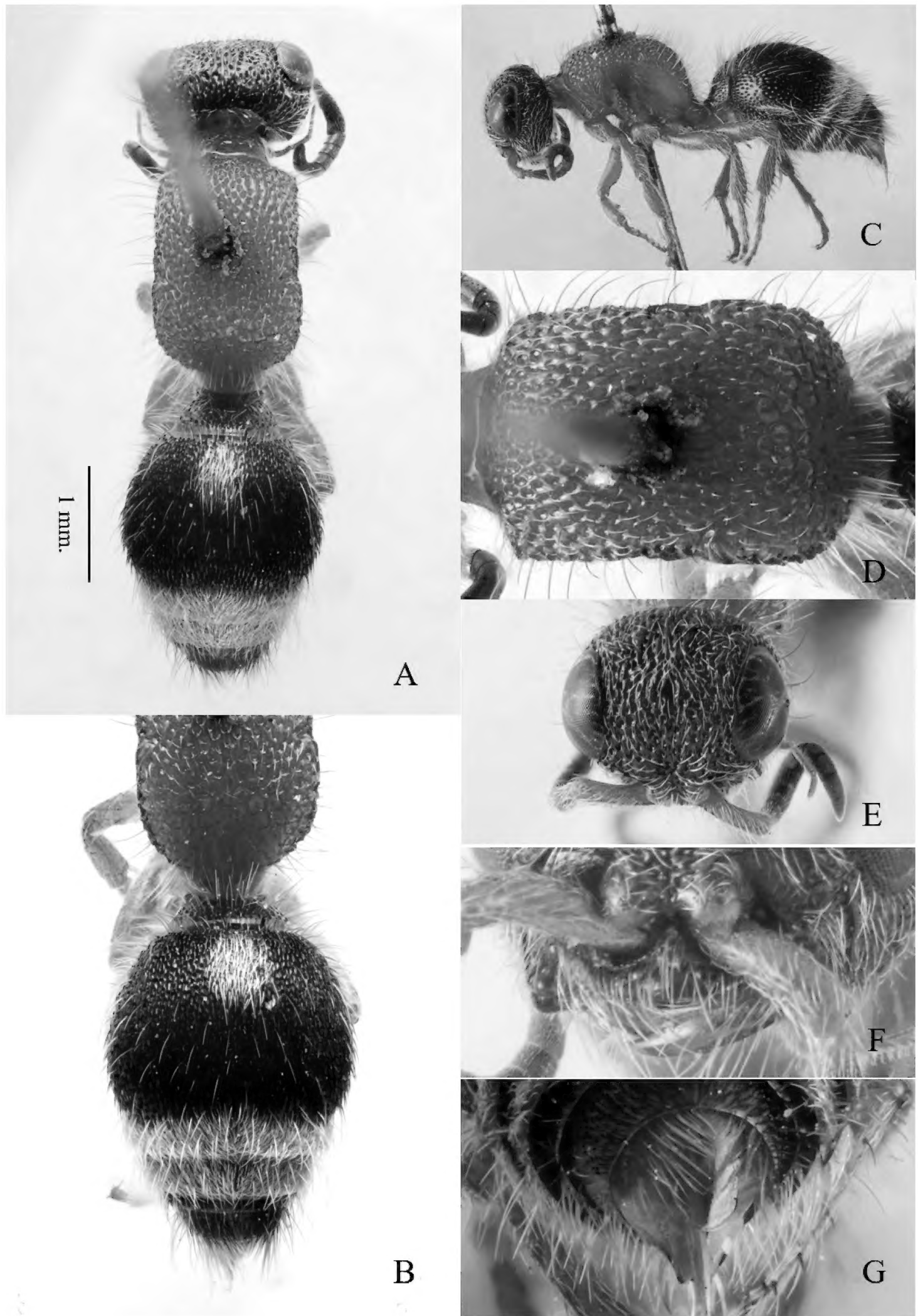
**Material examined. Holotype:** ♀, THAILAND, *Ubonratchathani Province*, Sirinthon district, 18.VII. 2002. W. Jaitrong. (THNHM). **Paratypes** 4♀, THAILAND, *Nakhon Rathasima Province*, 5.7 km N Muak Lek, 14.717 –101.188, 29.III.2019, K. Williams, S. Puttasok, K. Thoawan, R. Malee and N. Thaochan (2♀ CSCA); *Saraburi Province*, Mai Ngerm Thong Resort, 7 km NW Muak Lek, 14.711 –101.165, 15.III.2019, K. Williams, S. Puttasok, K. Thoawan, R. Malee and N. Thaochan (2♀, CSCA).

**Diagnosis. Female.** This species can be recognized by the following combination of characters: head and metasoma with cuticle black; mesosoma with cuticle orange-brown; propodeum clearly wider than pronotum; T2 disc with large mesal spot of whitish setae basally. Body length 4.0–5.5 mm.

**Male.** Unknown.

**Description. Female.** Body length 5.9 mm. **Coloration.** Head black, except antennal tubercle, mandible, scape, and pedicel largely orange-brown. Mesosoma entirely orange-brown, except legs moderately darkened apically. Metasoma black, except S1 and T1 basally orange-brown and T2–3 obscurely yellow-brown beneath white setal markings. Body setae generally sparse and silvery, except vertex and mesosomal dorsum with scattered silver and erect blackish setae; T2 disc, T4, and T5 setae dense black; and T2 basomedial spot, T2 apex, T3 entirely, and T6 basal tuft with dense whitish silver setae. **Head.** Width behind eye 1.15× pronotal width. Frons, vertex, and gena punctures dense to confluent. Mandible apex tridentate. Clypeus with transverse truncate lamella; basomedial portion convex, densely punctate, with obscure longitudinal carina basally. Antennal scrobe with dorsal carina. Antennal tubercle shagreened with a few scattered punctures. Genal carina weakly defined, forming raised tooth with hypostomal carina. F1 1.4× pedicel length, F2 1.4× pedicel length. **Mesosoma.** Length 1.1× width (width measured at propodeum). Dorsum of mesosoma with coarse confluent punctures. Side of mesosoma with scattered micropunctures with short setae, ventral portion of meso- and metapleuron areolate, posterior portion of propodeal





**Figure 4.** *Nordenella dokbua* sp.nov., holotype, female **A** dorsal view **B** posterior propodeal face and metasoma dorsum **C** lateral view **D** mesosoma **E** frons and vertex **F** clypeus **G** pygidium.

side with obscure reticulations. Mesopleural lamella absent. Humeral carina distinct, arcuate. Ratio of width of humeral angle, anterior spiracle, midpoint of mesonotum, propodeal spiracle, and widest point of propodeum 60:69:70:73:75. Scutellar scale obliterated. Posterior propodeal face areolate. Lateral and posterior propodeal faces separated by interrupted wavy carina. Metatibio-tarsal ratio 79:33:23:17:13:11. **Metasoma.** Terga 1–5 with small dense punctures, sparser on T1, confluent on T2. S1 with long simple longitudinal carina. T2 felt line  $0.25 \times$  T2 total length. T6 convex, mostly smooth. S6 posterior margin bidentate.

**Male.** Unknown.

**Distribution.** Thailand (Nakhon Ratchasima, Saraburi Provinces and Ubonratthani province).

**Etymology.** This name refers to an old name and meaning for Ubonratthani province (*dokbua*=water lily), the holotype specimen locality. Treat as a noun in apposition.

**Remarks.** In the key to female velvet ants in southern Thailand (Williams et al. 2019), this species keys out to *N. maleeae* Williams in Williams et al. 2019, the only other *Nordeniella* species known from the eastern Oriental region. *Nordeniella dokbua* can be separated from that species by having the propodeum clearly wider than the pronotum (mesosoma equally wide throughout its length in *N. maleeae*). These two Thai species can be separated from the known Indian and Sri Lankan *Nordeniella* females by having the head black, the head is reddish in western Oriental *Nordeniella* (see André 1894, 1907; Turner 1911). These Thai species can be separated from the Australasian *N. sumbawaensis* Okayasu, 2022 by having the basomesal clypeal carina indistinct and restricted to the basal portion and the metasoma dark brown to black; *N. sumbawaensis* has the basomesal clypeal carina distinct and continuous to the anterior margin, and the metasoma with obscure metallic blue lustre (Okayasu 2022).

## Genus *Smicromyrme* Thomson, 1870

### *Smicromyrme songkhwa* Sittichaya & Williams, sp. nov.

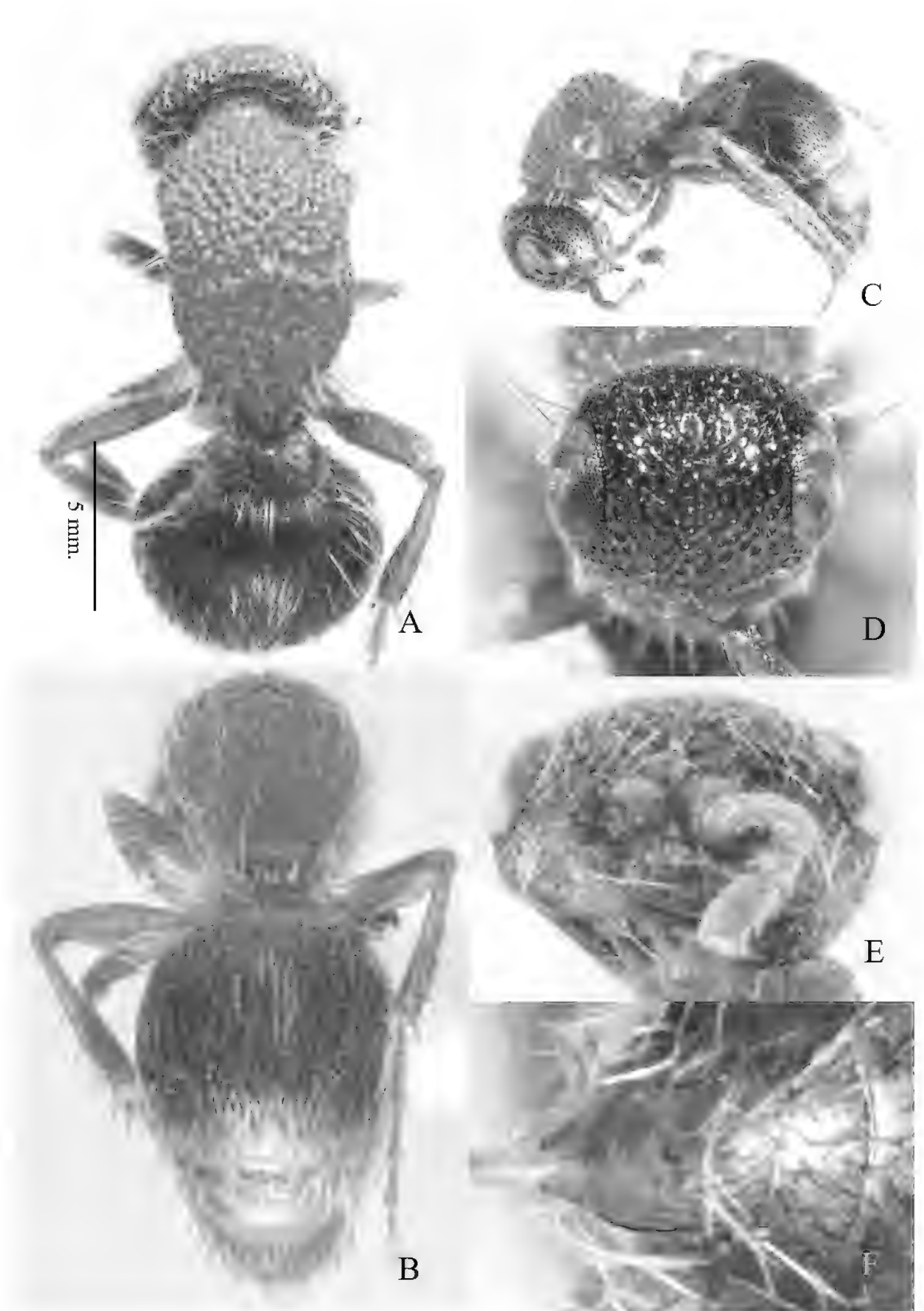
<https://zoobank.org/601D3E34-F438-4908-BD33-660110C129A6>

Fig. 5

**Material examined.** *Holotype* ♀, THAILAND, *Phitsanulok Province*, Chat Trakan District, Phu Soi Dao National Park, Dry evergreen forest, 21.IV.2002. W. Jaitrong. (THNHM).

**Diagnosis. Female.** This species can be recognized by the following combination of characters: the mesosoma is longer than wide; the scutellar scale is transversely arcuate, ~6 punctures wide; the T2 disc has a single mesal spot; the T2 posterior fringe and T3 are covered with whitish setae above lighter yellow-brown cuticle; the pygidium is elongate ovate with ~10 weakly incurved striae mostly ending before pygidial midpoint. Small species, 2.9 mm. long.

**Male.** Unknown.



**Figure 5.** *Smicromyrme songkhwaie* sp.nov., holotype, female **A** dorsal view **B** posterior propodeal face and metasoma dorsum **C** lateral view **D** frons and vertex **E** clypeus **F** pygidium

**Description. Female.** Body length 2.9 mm. **Coloration.** Head dark brown except frons, base of mandible, clypeus, and antenna yellowish brown; mesosoma orange-brown; legs yellowish brown, darker marginally and apically; metasoma dark brown, somewhat paler ventrally, except T1 and S1 orange-brown, and T2 posterior fringe and T3 mostly yellow brown. Body setae generally sparse and silvery, except appressed setae on T2 and T4–5 setae blackish, and T2 basomedial spot, T2 apical margin, and T3 entirely whitish. **Head.** Width behind eye  $1.13\times$  mesosoma width. Frons, vertex, and gena punctures tightly confluent. Frons surface rugose, forming transverse wavy carinules. Mandible apex apparently unidentate. Clypeus with obscure transverse carina; basomedial portion with weak flat tubercle. Antennal scrobe without dorsal carina. Antennal tubercle with weak punctures. Genal carina obscure, not reaching hypostomal carina. F1  $1.0\times$  pedicel length, F2  $1.15\times$  pedicel length. **Mesosoma.** Length  $1.05\times$  width. Dorsum of mesosoma with small coarse confluent punctures. Mesopleural lamella absent. Humeral carina present, weakly developed. Ratio of width of humeral angle, anterior spiracle, narrowest point of mesonotum, propodeal spiracle, and widest point of propodeum 38:40:37:38:39. Scutellar scale transversely arcuate,  $\sim 6$  punctures wide, forming transverse isosceles carina in posterior view. Posterior propodeal face with upper portion areolate, lower portion shagreened without punctures. Lateral and posterior propodeal faces not separated by carina. Metatibiotarsal ratio 34:18:11:9:7:6. **Metasoma.** T1–5 with small dense punctures, sparser on T1. S1 without longitudinal carina. T2 felt line  $0.40\times$  T2 total length. T6 with long ovate pygidial plate, with  $\sim 10$  laterally incurved striae mostly ending before pygidial midpoint. S6 posterior margin bidentate.

**Male.** Unknown.

**Distribution.** Thailand (Phitsanulok Province).

**Etymology.** This name refers to an old name for Phitsanulok Province (*song*=two in the Thai numeral system and *khwae*=tributary), the type specimen locality. Treat as a noun in apposition.

**Remarks.** In the key to female velvet ants in southern Thailand (Williams et al. 2019), this species terminates at couplet 25 with *S. helarctos* Williams in Williams et al. 2019) and *S. borkenti* Williams in Williams et al. 2019; currently *Andreimyrmex borkenti*, see Okayasu et al. 2021). Unlike *A. borkenti*, the scutellar scale is wide and the pygidial plate is widest mesally. Furthermore, this species does not belong in *Andreimyrmex* based on the unidentate mandible, unarmed prementum, and wide distinct scutellar scale (Okayasu et al. 2021b).

Based on similarities in the scutellar scale, pygidial shape, and light brown cuticle of the T2 fringe and T3, this species is apparently closely related to *S. helarctos*. Unlike that species, *S. songkhwae* has the mesosoma uniformly orange-brown (blackened laterally in *S. helarctos*) and longer than wide (as wide as long in *S. helarctos*). Additionally, the pygidial striae in *S. songkhwae* are fainter and restricted to the anterior half of the pygidial plate (pygidial striae distinct and extending beyond midpoint in *S. helarctos*).



Discussion

The four species discussed above are known from females only. In fact, of the 68 species known from Thailand, 49 (~72%) are known from females only; another 11 (~16%) are known from both sexes, while eight (~12%) are known from males only (Lelej 2005; Williams et al. 2019; Okayasu et al. 2021b). Based on these data, male velvet ants in Thailand are much more poorly understood than females.

Of the 83 specimens housed in the Thailand Natural History Museum (Table 1), seven belonged to the four species discussed above. Fifty-eight specimens were identified to species that are already known from Thailand, mainly species that also occur in southern Thailand and were treated in Williams et al. (2019). The remaining 24 specimens could not be reliably identified to species, because they were unassociated males in genera that have not been adequately revised (20 specimens) or females that were potentially conspecific with other Oriental species (4 specimens). Without molecular data or structural comparisons of larger series with both sexes, we refrain from describing these forms as new or attributing them to already recognized taxa. Altogether, 20 new Region records and 47 new Province records were found in the material of the Thailand Natural History Museum (Table 1).

**Table 1.** Synoptic list of velvet ants in the Thailand Natural History Museum. Asterisks (\*) represent new distribution records for the Region or Province.

Species	Sex	Thai-Distribution
<i>Andreimyrmex borkenti</i> (Williams in Williams et al. 2019)	f	E*: Chachoengsao*
<i>Andreimyrmex substriolata</i> (Chen, 1957)	f	NE*: Mukdahan*
<i>Bischoffitilla perakensis</i> (Pagden, 1934)	f	C: Pathum Thani*
<i>Bischoffitilla selangorensis</i> (Pagden, 1934)	f	N*: Chaing Mai*, Lampang*; NE*: Loei*, Nakhon Ratchasima*
<i>Bischoffitilla</i> cf. <i>mammalifera</i> (Chen, 1957)	m	S: Nakhon Si Thammarat
<i>Cockerellidia sohmi</i> (Cockerell, 1928)	m	E*: Chachoengsao*
<i>Ctenotilla guangdongensis</i> Lelej, 1992	f	NE: Nakhon Ratchasima*
<i>Eotrogaspidia oryzae</i> (Pagden, 1934)	f	C: Pathum Thani*
<i>Eotrogaspidia auroguttata</i> (Smith, 1855)	f	W*: Tak*; C: Pathum Thani*
<i>Krombeinidia</i> cf. <i>subfossata</i> (Chen, 1957)	m	E: Chonburi; S: Nakhon Si Thammarat
<i>Mickelomyrme isora</i> (Cameron, 1900)	m	N: Chiang Mai
<i>Mickelomyrme leleji</i> Sittichaya & Williams, sp. nov.	f	NE: Ubon Ratchathani
<i>Mickelomyrme pusillaeformis</i> (Hammer, 1962)	f	N: Chiang Mai
<i>Mickelomyrme</i> sp.	m	E: Chonburi
<i>Mutilla harmandi</i> André, 1898	f	NE: Kalasin*; S*: Nakhon Si Thammarat *
<i>Nemka conjugenda</i> (Magretti, 1892)	f	N: Lampang*; NE*: Ubon Ratchathani *
<i>Nemka</i> cf. <i>conjugenda</i> (Magretti, 1892)	f/m	NE: Ubon Ratchathani
<i>Nordeniella dokbua</i> Sittichaya & Williams, sp. nov.	f	NE: Ubon Ratchathani
<i>Odontomutilla</i> cf. <i>haematocephala</i> (André, 1896)	m	S: Nakhon Si Thammarat
<i>Odontomutilla</i> sp.	m	E: Chachoengsao
<i>Orientidia manleyi</i> Williams in Williams et al. 2019	f	NE*: Nakhon Ratchasima *; E*: Chonburi*
<i>Orientidia thoawanae</i> Williams in Williams et al. 2019	f	E*: Chonburi*

Species	Sex	Thai-Distribution
<i>Orientilla vietnamica</i> Lelej, 1979	f/m	E*: Chonburi*
<i>Physetopoda thai</i> Lelej, 1995	f	N: Chaing Mai; C: Saraburi*; E: Chachoengsao*
<i>Promecilla decora</i> (Smith, 1879)	f	E: Chonburi*
<i>Promecidia cf. birmanica</i> (de Dalla Torre, 1897)	m	NE: Nakhon Ratchasima; E: Chachoengsao, Trad
<i>Sinotilla cyaneiventris</i> (André, 1896)	f	C: Pathum Than*
<i>Smicromyrme songkhwa</i> e Sittichaya & Williams, sp. nov.	f	N: Phitsanuklok
<i>Smicromyrme triguttatus</i> Mickel, 1933	f	N: Chiangrai*; NE*: Nakhon Ratchasima *
<i>Smicromyrme cf. dardanus</i> (Smith, 1857)	m	NE: Nakhon Ratchasima
<i>Trogaspidia fuscipennis</i> (Fabricius, 1804)	f	NE*: Burirum*
<i>Trogaspidia pagdeni</i> (Mickel, 1933)	m	NE*: Burirum*, Kalasin*; W*: Tak*; E: Chonburi*, Rayong*; S: Nakhon Si Thammarat*
<i>Trogaspidia pittsi</i> Williams in Williams et al. 2019	f	N: Mae Hong Son *
<i>Trogaspidia wilsoni</i> Williams in Williams et al. 2019	f/m	E*: Trad*; NE*: Burirum*, Chaiyaphum*
<i>Trogaspidia cf. rhea</i> (Mickel, 1933)	f	N: Lampang
<i>Trogaspidia</i> sp.	m	E: Sa Kaeo
<i>Wallacidia oculata</i> (Fabricius, 1804)	m	N: Lampang; E: Chachoengsao*
	f	N: Chaing Mai, W*: Tak*; NE: Burirum; E: Chachoengsao*; S: Phuket*
<i>Zeugomutilla pycnopyga</i> Chen, 1957	m	NE*: Chachoengsao*
<i>Zeugomutilla saepes</i> (Chen, 1957)	f	E: Sa Kaeo *, NE: Chachoengsao*

**Note.** See Fig. 1 for the acronym of Thailand parts: N – northern, N-E – north-eastern, C – central, E – eastern, S – southern.

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